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# Quality of life of women with urinary incontinence in rehabilitation treatment

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## Abstract

This article analyzed how sexual satisfaction, suffering, severity and impact of urinary incontinence, and psychological morbidity affected women's quality of life and whether suffering mediated the relationship between psychological morbidity and quality of life. The study included 80 women diagnosed with urinary incontinence receiving rehabilitation treatment. Regression analysis showed that sexual satisfaction, suffering, and urinary incontinence severity and impact predicted quality of life and that suffering mediated the relationship between psychological morbidity and quality of life. The findings suggest that interventions should be tailored according to the suffering reported by women and the impact of the urinary incontinence on the couple's sexual relationship.

## Keywords

health psychology, quality of life, sexuality, women's health, psychological distress

## Introduction

Urinary incontinence (UI) among women is a major health concern with both psychological and economic impact (Nitti, 2001). As underreported, underdiagnosed, and undertreated, UI is an understudied condition (Shaw, 2001). According to the International Continence Society, UI is a complaint of involuntary loss of urine with three subtypes: urge UI (UUI), stress UI (SUI), and mixed UI (MUI) (Abrams et al., 2002; Haylen et al., 2010). UUI is defined as the involuntary loss of urine associated with urgency to urinate; SUI is defined as the involuntary loss during laughter, sneezing, coughing, or other situations that might put pressure on a woman's bladder, and MUI is defined as a combination of both stress and urge incontinence, and is the most diagnosed type of incontinence, in women (National Kidney and Urologic Diseases Information Clearinghouse, 2010).

UI has a prevalence rate of 12–69 percent (Cerruto et al., 2013; Hunskaar et al., 2004; Irwin et al., 2006; Lasserre et al., 2009) Nitti, 2001). In Portugal, according to the Portuguese Association of Urology (2010), it is estimated that there are 600,000 incontinent people between 45 and

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65 years old. UI affects about 20 percent of the Portuguese population: 33 percent of women and 16 percent of men above 40 years (Fernandes et al., 2015). Correia et al. (2009) found a prevalence of 21.4 percent in a study with Portuguese women, but only 4.5 percent had been diagnosed by a physician.

A link between women who have UI and lower quality of life (QoL) has been found in the literature (Aslan et al., 2009; Koch, 2006; Perez-Lopez et al., 2012; Rannestad and Skjeldestad, 2011; Riss and Kargl, 2011). Riss and Kargl (2011) found a connection between UI and QoL identifying three problematic areas: daily life, recreational activities, and sex life. In addition, research has shown a decrease in social participation (Lee, 2009), physical health (Mishra et al., 2009), emotional health (Miu et al., 2010), and lower scores on QoL measures (Aguilar-Navarro et al., 2012; Cheater et al., 2008; DuBeau et al., 1998, 2006; Dugan et al., 1998; Hawkins et al., 2011).

The type of UI also impacts QoL. Mixed urinary incontinence, for example, has been shown to have a larger effect on QoL than the other types (Ozkan et al., 2011). The severity and impact of the incontinence have also been negatively correlated with QoL (Dugan et al., 1998; Tincello et al., 2010; Yu et al., 2003). In fact, the type and severity of UI, duration of symptoms, and age are important clinic and demographic characteristics to take into consideration in QoL (Basak et al., 2013; Fernandes et al., 2015; Lasserre et al., 2009). The overall prevalence rate of UI increases with age (Wennberg et al., 2009) and several studies, that have included patients with a diverse age range have found similar results (Kocak et al., 2005; Mishra et al., 2009; Wennberg et al., 2009).

A relationship between UI and psychological morbidity (Getliffe et al., 2007; Herzog et al., 1988; Vigod and Stewart, 2006) has been found in the literature with mixed results. Melville et al. (2002) found that 21 percent of women with urge UI reported depression in comparison to only 3 percent of women who had stress UI. A study conducted by Zorn et al. (1999) found that 42 percent of adults (men and women) with UUI or MUI reported depression compared to 14 percent of adults with SUI. Perry et al. (2006) indicated that anxiety was both a consequence and a risk for UUI while depression only appeared to be a consequence. Also, having UUI was a predictor of anxiety and depression while SUI was not.

Having a UI may have several adverse effects on a person's social life (Hayder and Schnepp, 2010; Lee, 2009; Miu et al., 2010) since women limit social activities due to the possible shame and fear associated with leaving the house (Hayder and Schnepp, 2010; Miu et al., 2010). Hagglund and Wadensten (2007) found altered sexual relationships and a need for distancing in the women's narratives. In fact, sexual satisfaction is another domain that is affected by UI. People with UI tend to describe their condition as interfering with their sexual life (Hagglund and Wadensten 2007; Hayder and Schnepp, 2010; Serati et al., 2009).Women have reported that the UI takes the spontaneity out of their sexual relationship, which lessens enjoyment (Hagglund and Wadensten, 2007). However, other studies found that women with mild to moderate SUI reported having a fulfilling sexual life (Liebergall-Wischnitzer et al., 2011). Studies addressing UI severity and impact as well as body image regarding sexual satisfaction reported a link between UI, low sexual satisfaction, and a more negative body image (Lowenstein et al., 2009a, 2009b) with clear implications on women's QoL.

The literature has indicated that having a UI creates suffering due to its negative impact on the individual's social life (Lee, 2009; Miu et al., 2010). Women with UI reported higher levels of anxiety and depression than the general population (Fultz and Herzog, 2001; Perry et al., 2006) as well as poorer physical and emotional health (Yu et al., 2003). Therefore, suffering may function as a mediator in the relationship between psychological morbidity and QoL. However, to our knowledge, no studies have been reported, in the literature that focused on the role of suffering in the relationship between psychological morbidity and QoL. In fact, this is the first study

that addresses how suffering impacts QoL, in women with UI.

Based on the review of the literature, the purpose of this article was to examine the relationships between UI severity and impact, suffering, psychological morbidity, sexual satisfaction, and QoL; to analyze the impact of age and education on QoL; to find the best predictors of QoL; and finally, to explore whether suffering was a mediator in the relationship between psychological morbidity and QoL. We hypothesize that higher UI severity will be positively associated with higher psychological morbidity and suffering and inversed related to sexual satisfaction and QoL. In terms of predictors, it is expectable that clinical variables such as type of UI (SUI), intensity of symptoms, duration of symptoms, as well as age, sexual satisfaction, suffering, UI severity and impact and sexual satisfaction will be predictors of QoL. Finally, we expect that suffering will mediate the relationship between psychological morbidity and QoL.

## Methods

### Sample characteristics

The sample consisted of 80 women with UI that were in rehabilitation treatment. The mean age for women was 49.59 (standard deviation (SD) = 12.04), ranging from 27 to 80 years old. From the total sample, 91.3 percent were married, 33.8 percent had 4 years of education, 37.5 percent, 7 years of education, 13.8 percent, 12 years of education, and finally, 13.8 percent had a university degree. Regarding protection for urine loss, 68.8 percent used protection, more than half of the sample had urine loss everyday (56.%), nearly half showed moderate levels of incontinence (48.8%), with 27.5 percent showing light severity and impact of incontinence and 23.8 percent having severe levels of incontinence. Most of the women had SUI (75%), 17.5 percent presented UUI, and 7.5 percent MUI, for an average of 5.3 (SD = 5.02) years. Of the total sample, 11.3 percent already had surgery to control the UI. In terms of descriptive statistics for the psychological variables, the mean for QoL was 73.59 (SD = 19.10); for psychological morbidity, 17.48 (SD = 6.99); for UI severity and impact, 12.91 (SD = 3.66); for suffering, 90.14 (SD= 30.60) and for sexual satisfaction, 40.81 (SD = 14.21).

### Procedure

Data were collected in the Physical and Rehabilitation Service of a central Hospital, in the North of Portugal. A cross-sectional and correlational design was used. Participants were knowledgeable of the purpose of the study and signed an informed consent. Inclusion criteria was: having a diagnosis of UI; being a woman; receiving rehabilitation treatment for UI (physiotherapy treatment that included pelvic floor muscle training exercises); and having no cognitive impairment. Women were identified by their physician and when they met the inclusion criteria were contacted by the researchers. The study was approved by the Ethics Committee of the Hospital. Of those women invited, 5 percent declined participation. Women answered the questionnaires, the day of their treatment, in the hospital setting.

### Instruments

*Clinical and Sociodemographic Questionnaire* that assessed age, duration of symptoms, type of UI, and intensity of symptoms.

*Incontinence QoL.* This scale assesses incontinence-related QoL (Patrick et al., 1999; Portuguese Version of Souza et al., 2009) and comprises 22 items in a scale of 5 points ranging from 1 "extremely" to 5 "not at all," and three dimensions: avoidance and limiting behavior, psychosocial impact, and social embarrassment. An example of an item from the avoidance dimension and limiting behavior is: "I worry about not being able to get to the toilet on time"; from the psychosocial impact dimension: "I don't feel free to leave my home for long periods of time," and from the social embarrassment dimension: "I worry about others smelling urine on me." A higher result indicates a better QoL. In this study only the global score was used. The

Portuguese adapted version showed an alpha of .93 and in this sample, the alpha was .95.

*Satisfaction with sexual relationship.* This scale assesses sexual satisfaction (Cappelleri et al., 2004; Portuguese version of Pais-Ribeiro and Raimundo, 2005). It comprises 13 items in a scale of 5 points ranging from 1 "never" and 5 "always" and two dimensions: satisfaction with sexual functioning and confidence. Item examples for the two dimensions include "I felt relaxed about initiating sex with my partner," "I was inclined to feel that I am a failure", respectively. In this study, only the total score was used. A higher result indicates greater satisfaction with the sexual relationship. The alpha in the Portuguese version of the scale was .90 and .97, in this study.

*PRAFAB Questionnaire UI Severity and Impact.* This scale assesses UI severity and impact of UI (Hendriks et al., 2007). It comprises five items in a scale of 5 points ranging from 1 "less severity and impact" to 5 "greater severity and impact", and includes four subscales: protection, severity and impact, frequency, and adjustment and body image. Item examples for each subscale are: "sometimes I use protection" or "I have to change my underwear because of urine loss"; "Sometimes I lose a trickle"; "I am not hampered in my daily activities," and "I am not bothered by my urine loss", respectively. Only the total score was used and a high result indicates more UI severity and impact. The alpha in the original version was .82 and .75., in this study.

*Hospital Anxiety and Depression Scale.* This scale assesses psychological morbidity (Zigmond and Snaith, 1983; Portuguese version of Pais-Ribeiro et al., 2007). It comprises 14 items in a scale of 4 points ranging from 0 to 3 in each subscale and two dimensions: depression and anxiety. Item examples for anxiety include "I feel tense or 'wound up," and for depression "I still enjoy the things I used to enjoy". A global score may also be calculated mainly due to overlap of symptoms what is supported by the existence of common dimensions shared by anxiety and depression, indicating psychological morbidity (Johnston, Pollard, and Hennessey, 2000). In this study, only the global score was used. A higher result indicates higher psychological morbidity. In this study, the alpha for the global scale was .80.

*Subjective Experiences of Illness Suffering Inventory.* This scale assesses the subjective experiences of suffering (McIntyre and Gameiro, 1997). It comprises 44 items in a scale of 5 points ranging from 1 "totally false" till 5 "totally true" and five dimensions: psychosocial suffering, physical suffering, existential suffering, socio-relational suffering, and positive experiences of suffering. Item examples for each dimension include "I feel more tired since I have this problem," "I think a lot on the severity and impact and the consequences of my problem" respectively. In this study only the total score was used. A higher score indicates greater suffering. The alpha, in the original Portuguese version, was .93 and, in this study, was .96.

## Data analyses

Since the corollaries for parametric statistics were present, a Pearson correlation analysis was conducted to identify the relationships between UI severity and impact, psychological morbidity, suffering, sexual satisfaction, and QoL. To find differences in QoL according to socio-demographic variables, t-tests and Mann–Whitney tests were conducted. To find the best predictors of QoL, a hierarchical regression analysis was performed. In the first step, age, duration of symptoms, type of UI (stress, urgency, and mixed UI were recoded into stress vs urgency/mixed), and intensity of symptoms (light, moderate, and severe were recoded into light vs moderate/severe) taking into consideration the size of the groups, in both situations. In the second step, sexual satisfaction, suffering, UI severity and impact, and psychological morbidity were introduced to understand their contribution, beyond socio-demographic and clinical characteristics. Finally, the mediating effect of suffering was analyzed through bootstrapping (Preacher and Hayes, 2004, 2008). Analyses were conducted using SPSS version 22 (IBM Corporation, 2013).

**Table 1.** Predictors of quality of life ($N$ = 80).

| Variables | Predictors of quality of life | | | |
|---|---|---|---|---|
| | $R^2$ (*Adj.* $\Delta R^2$) | $F$ | $\beta$ | $t$ |
| Step 1 | .22 (.18) | $F(4, 72) = 5.10^{**}$ | | |
| Age | | | .036 | 0.327 |
| Duration of symptoms | | | −.066 | −0.608 |
| Type of UI | | | −.152 | −1.444 |
| Intensity of symptoms | | | −.425 | −3.881*** |
| Step 2 | .86 (.85) | $F(8, 68) = 53.63^{***}$ | | |
| Age | | | .064 | 1.272 |
| Duration of symptoms | | | −.010 | −0.218 |
| Type of UI | | | −.086 | −1.840 |
| Intensity of symptoms | | | −.023 | −0.434 |
| Sexual satisfaction | | | .148 | 2.216* |
| Suffering | | | −.495 | −7.163*** |
| UI severity and impact | | | −.361 | −5.749*** |
| Psychological morbidity | | | −.094 | −1.569 |

*p < .05; ** p < .01; *** p < .001.

## Results

### *Relationship between psychological morbidity, suffering, sexual satisfaction, UI severity and impact, and QoL*

Results showed a negative relationship between suffering ($r$ = −.861**), UI severity and impact ($r$ = −.742**), psychological morbidity ($r$ = −.515**) and Qol, and a positive relationship between sexual satisfaction and Qol ($r$ = .655**).

### *Differences on QoL according to socio-demographic characteristics*

Since 91 percent of the sample was married, differences on QoL were performed regarding age, ($t(78)$ = −.106, $p$ = .916) and education ($\mu$ = .516, $p$ = .225) revealing no significant differences.

### *Predictors of QoL*

The severity of symptoms was a significant predictor of QoL, in the first step (*Adj.* $R^2$ = .18, $p$ < 001). When the psychosocial predictors were added, severity of symptoms was no longer a significant predictor. The model was significant (*Adj.* $R^2$ = .85, $p$ < .001) ($F(8, 68) = 53.63$, $p < .001$), explaining 85 percent of the variance and the predictors were satisfaction with sexual relationship ($t$ = 2.216, $p$ < .05), suffering ($t$ = −7.163, $p$ < .001), and UI severity and impact ($t$ = −5.749 $p$ < .001). Psychological morbidity did not contribute to Qol (Table 1).

### *Suffering as a mediator in the relationship between psychological morbidity and QoL*

The indirect effect of psychological morbidity and QoL was significantly mediated by suffering ($B$ (SE) = −1.16 (0.22); 95 percent confidence interval = −1612 to −.7599, $p \leqslant .001$) (Figure 1).

## Discussion

According to the results, QoL was negatively related to psychological morbidity, suffering, and UI severity and impact, and positively related with satisfaction with sexual relationships. These results emphasize the importance of psychosocial variables in the adjustment to a UI in terms of QoL. Not only psychological

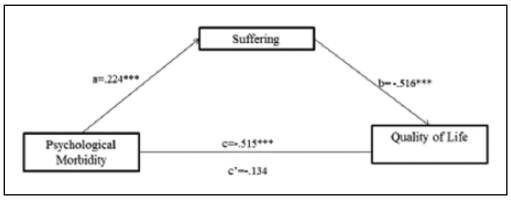


**Figure 1.** Suffering as a mediator in the relationship between psychological morbidity and quality of life.

morbidity is important, as the literature has shown (Getliffe et al., 2007; Vigod and Stewart, 2006), but also the suffering associated with the experience of having a UI. Although suffering has not been specifically studied in women with UI, it has been a topic of study in other populations with similar results (Binaschi et al., 2013; Gameiro, 1999).

Understandably, a lower severity and impact of UI symptoms and satisfaction with sexual relationships were positively related to QoL and these results are in accordance with the literature (Lowenstein et al., 2009a, 2009b). Age, duration of symptoms, and type of UI were not significant predictors of QoL. However, the severity of UI symptoms was a predictor when psychological variables were not included in the model i.e. women with light symptoms showed better QoL.

In this study, type of UI did not predict QoL although it has been suggested that there is a relationship between the type of UI and QoL (Dugan et al., 1998; Senra and Pereira, 2014; Tincello et al., 2010; Yu et al., 2003). In fact, the level of severity of the UI seems to impact more the patient's QoL than the type of UI, as Barentsen et al. (2012) have found. Furthermore, it seems that the severity of UI (moderate and severe), regardless of the UI type, increases the level of depression (Melville et al., 2005) and decreases QoL (Di Gangi Herms et al., 2003; Minassian et al., 2003; Papanicolaou et al., 2005). However, not all the studies have found differences on psychological variables according to the type of UI (Samuelsson et al., 1997).

In this study, psychological variables seemed to have a greater impact on QoL than the type and severity of UI particularly, high sexual satisfaction, less suffering, and lower UI severity and impact. Psychological morbidity, in this sample, was not a significant predictor of QoL. Some studies have found a relationship between these two variables (Fultz and Herzog 2001; Perry et al., 2006; Yu et al., 2003). Although in this study psychological morbility and QoL were also correlated, psychological morbidity was not a predictor of Qol, probably due to the modest psychological morbidity presented in the sample.

Low levels of suffering predicted QoL. This result is interesting and shows how important suffering needs to be taken into consideration. Charalambous (2009) found that women with UI report low self-confidence, feeling ashamed, embarrassed, and unattractive what may cause a great amount of distress and suffering. Also, women with UI may live in constant fear that others may discover their condition at work or in leisure activities since there is still a stigma associated with this condition, with a great impact on women's QoL.

Sexual satisfaction was a positive predictor of QoL. In fact, UI has a negative impact on sexuality (Hagglund and Wadensten, 2007; Hayder and Schnepp, 2010; Serati et al., 2008). Therefore, it comes as no surprise that when women feel satisfied with their sexual relationship, they report better QoL. Finally, lower UI severity and impact predicted QoL. The literature shows a connection between UI, sexual satisfaction, and QoL (Hagglund and Wadensten, 2007; Hayder and Schnepp 2010; Riss and Kargl, 2010; Serati et al., 2008). Low sexual satisfaction has also been associated with a more negative body image that is also assessed by the UI severity and impact scale (Lowenstein et al.,2009a) what may explain the relationships found.

Finally, suffering mediated the relationship between psychological morbidity and QoL. The literature shows a connection between morbidity and QoL, in women with UI (Shaw, 2001), particularly in terms of social and recreational withdrawal, stemming from their anxiety related to becoming incontinent, in public.

Therefore, the distress and depression that may result from having UI (Yup and Cardozo, 2007) may be felt as suffering that impacts QoL, explaining the results and confirming the important role of suffering as a mediator variable. In terms of implications for practice, according to Krause et al. (2003), tailored interventions for women with UI should include the variables that interfere with the patient's life (e.g. severity of the symptoms; shame). Taking into consideration the results of the present study, intervention should also focus on the women's reported suffering.

This study has several limitations that need to be acknowledgeable: the limited number of participants and the exclusive use of self-report measures. Also, most women had SUI. Future studies should include a bigger sample including more women with UUI. This sample is also a highly educated sample that presented moderate levels of UI severity. Therefore, it would be important to replicate the results with women with more severe UI and less educated. Future longitudinal studies should also address how women cope with the UI over time, and particularly the role of coping in the relationship between psychological morbidity, suffering, and QoL.

## Conclusion

Regardless of age, duration of symptoms, type of UI, and intensity of symptoms, psychological variables such as sexual satisfaction, suffering, and UI severity and impact predicted QoL. This result suggests the need for psychological intervention to reduce the suffering associated with the UI as well as its severity and the impact, in this population.

It is also important to demystify the problem of urinary incontinence through health promotion strategies that inform women about this condition. Less than one-third of women with incontinence will seek medical help (O'Donnell et al., 2005), emphasizing the need for education regarding coping strategies. Furthermore, according to the results of the present study, psychological intervention should be included in the treatment for urinary incontinence, given the important role of psychological variables on QoL, particularly the mediator role of suffering. Therefore, health professionals should be aware of the importance of asking how the UI impacts the woman's sexual relationship with the partner; take into consideration the severity and impact of the UI; and finally address how the UI creates suffering in the several domains of the woman's life. For those couples struggling with their sexual relationship, medical family therapy should be made available since it has been effective in areas, such as couple relationships, dealing with medical conditions (Zhang et al., 2007).

### Declaration of Conflicting Interests

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